THE HEDGE I KNOW

E. A. Sarlicke
from D C E.
June 4th '14.

IV Form. also Hedgehopping a Cuckoo Flower.
Wallflower Bay one. Do the 7 7 & 7 Diagram
Read proceedings.

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Rachel Dalton.
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K Barnard

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EDITED BY
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WITH
13 COLOURED
& MANY BLACK AND WHITE
ILLUSTRATIONS

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CONTENTS

	PAGE
I. How we obtained our Hedgerows—The Battle of the Plants —Climbing Plants	13
II. White Bryony—The Food of Plants—Black Bryony—Honeysuckle	15
III. Cleavers—Ivy—Bramble	21
IV. Wild Fruits—Traveller's Joy—Wild Rose—Nut Hazel	24
V. Rose Gall and Rose Gall Wasp—Herb Robert	31
VI. Wild Arum, or Cuckoo Pint—Sweet Violet—Dog Violet	34
VII. Greater and Lesser Stitchworts—Germander Speedwell—Cow Parsnip	38
VIII. Foxglove—Humble Bee—White Dead Nettle—Honey Bee	41
IX. Dock—Snail—Tiger Moth—Green-veined White Butterfly—Hedge Garlic	44
X. Chaffinch — Long-tailed Tit — Garden Warbler — Hedge Sparrow—The young Cuckoo—Yellow Bunting	50
XI. Greater Whitethroat—Stinging Nettle—Small Tortoiseshell Butterfly—Robin	57
XII. Weasel—Long-tailed Field-Mouse—Brown Rat—Hedgehog	60
XIII. Dormouse—Common Partridge	63
XIV. Oil Beetle—Sycamore—Common Maple—Orange-tip Butterfly—Hedge Mustard	66
XV. Ground Ivy—Glow-worm	72

There is a majesty and mystery in Nature, take her as you will. The essence of poetry comes breathing to a mind that feels from every province of her empire.—CARLYLE.

LIST OF ILLUSTRATIONS

COLOURED PLATES AND HALF-TONES

The Hedge I Know . . . . . *Frontispiece*
Plan Showing Hedges and other Places . . . *facing page* 13
Flower of Bramble. White Violets . . . . „ 16
Fruit of Black Bryony. Honeysuckle . . . „ 19
Fruit of Bramble. Cleavers or Goosegrass . . . „ 24
Greater Stitchwort. Cow Parsnip . . . . „ 27
Snails on Dock Leaf. Long-tailed Field Mouse . . „ 34
Wild Arum, or Cuckoo Pint . . . . . „ 37
Life History of Small Tortoiseshell Butterfly . . „ 44
Tiger Moth and Pupa Case. Green-veined White Butterfly „ 47
Nest and Eggs of Garden Warbler . . . . „ 54
Nest, Eggs, and Young of Greater Whitethroat . . „ 57
Common Partridge on Nest, and Nest and Eggs . . „ 66
Robin entering Nest, also Nest and Eggs . . . „ 69
A Pair of Hedgehogs . . . . . „ 72
Dormice awake. Dormouse asleep . . . . „ 75

ILLUSTRATIONS IN THE TEXT

FIG.		PAGE
1.	White Bryony showing Tendrils and Spiral	16
2.	Leaf and Twining Stem of Black Bryony	19
3.	Fruit of Honeysuckle	19
4.	Left and Right Handed Climbing Stems	20
5.	Cleavers, or Goosegrass	20
6.	Ivy showing Leaves, Stem, and Roots	22
7.	Fruit of Hawthorn (Haws)	23
8.	Fruit of Privet	27

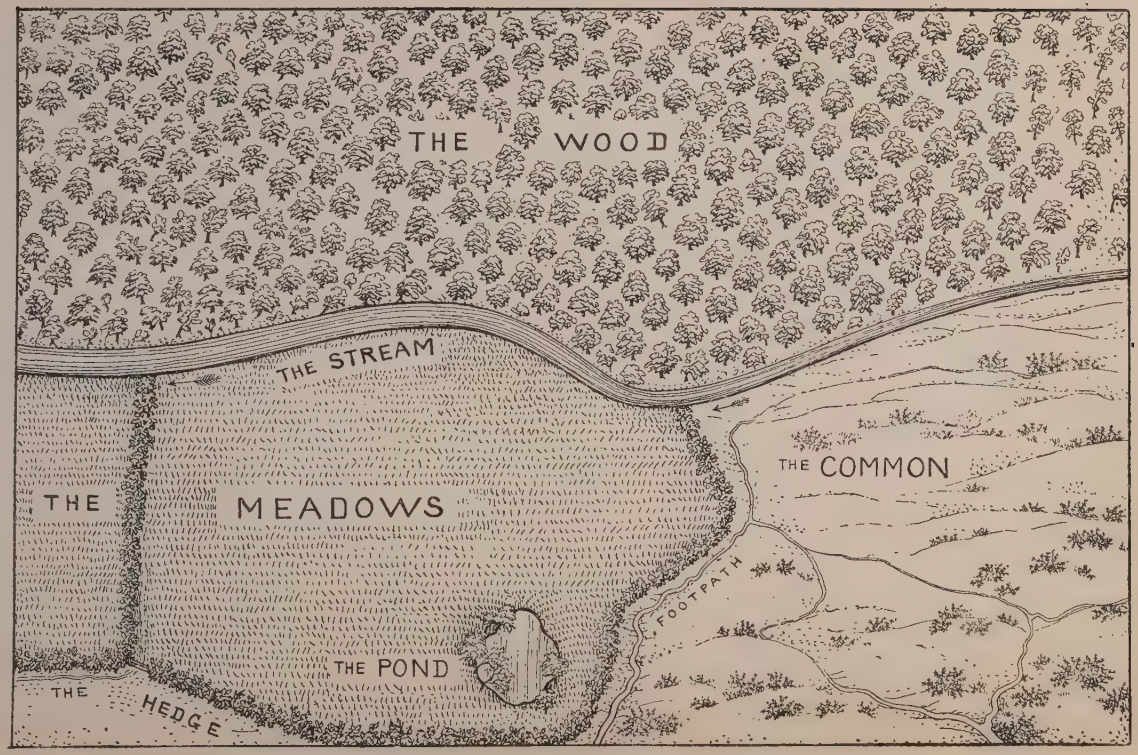
FIG.		PAGE
9.	Traveller's Joy in Seed	27
10.	Section of Wild Rose	28
11.	Fruit of Wild Rose (Hips)	28
12.	Rose showing Leaves, Thorns, etc.	29
13.	Nut Hazel showing Catkins and Female Flowers	29
14.	Umbel of Cow Parsnip	40
15.	Humble Bee	41
16.	Leaf of Stinging Nettle	42
17.	Leaf of Dead Nettle	42
18.	White Dead Nettle	42
19.	Stinging Nettle	42
20.	A Larva or Caterpillar	48
21.	Leaf of Hedge Garlic	49
22.	Hawthorn showing Leaves, etc.	49
23.	Long-tailed Tit	51
24.	Yellow Bunting	53
25.	Head and Foot of Weasel	61
26.	Fruit of Nut Hazel	64
27.	Oil Beetle	69
28.	Leaf of Maple	71
29.	Leaf of Hedge Mustard	71
30.	Ground Ivy showing Roots	75
31.	Glow Worms	76

THE "COUNTRY" I KNOW

WHAT does the country mean to you? Does it suggest a shady walk beneath the leafy trees, wherein the birds build their wondrous nests and sing their magic songs? Does it call to mind a ramble along some silvery stream whose ever-running waters shelter the slippery silent fish? Or does it mean a wild and lonely common, where one may roam with freedom among the stately Bracken and the golden Gorse?

To others, perhaps, the word "Country" recalls a vision of a green grassy meadow, rich with Daisies and Buttercups; or, maybe, a glorious lane wending its way between steep hedges, all aglow with colour and life.

But although each may have a favourite spot, yet if we would understand Nature better, we must seek her in all her phases, and learn from her in all her moods. Spring will summon her from her long wintry sleep; Summer will clothe her in all the colours of the rainbow; Autumn will herald the season of seed and harvest; Winter, eager to repay her for the loss of leaf and blossom, will softly spread over her a mantle of white, fleecy snow, and bid Jack Frost prepare a glittering crown to adorn her brow.



Plan showing Hedge, Pond, Wood, Meadow, Stream, and Common.

THE HEDGE I KNOW

I.

HOW WE OBTAINED OUR HEDGEROWS—THE BATTLE OF THE PLANTS—CLIMBING PLANTS.

We are told that many hundreds of years ago, when our forefathers buried their dead comrade, they placed by his side the wild fruits, nuts, and seeds that he used to eat when alive. They then noticed that more fruit and seeds of the same kind grew from the earth, which had been dug to make the grave, and they thought that these were their dead comrade's thanks for the food that had been given.

It took a very long time, however, for our ancestors to learn how important it was to dig the earth and sow the seed, but at last agriculture commenced in real earnest, and thus it was we came to possess our hedgerows, which were found necessary for dividing the land and separating the fields. To such an extent has this been carried out, that the green meadows of England and her hedgerows have become quite a feature of the landscape; they are now to be numbered among the glories of our country, and are perhaps unsurpassed in any other land.

The hedge, however, should be for us something more than a pretty picture of green leaf and coloured blossom, for within its leafy bowers and beneath its shady branches dwells a throng of wonderful and busy creatures, whose every act is full of interest, and whose daily life affords constant instruction and delight to those who patiently watch and wait.

If you look at a hedge, does it not convey to you an idea of " climbing," or of things that are searching for light and

air? Carefully examine it, and you will probably be struck with the great struggle for existence that is going on, for this phase of Nature can better be seen, perhaps, in this situation than in any other.

Select a square yard of ground almost anywhere along the country-side, and a most interesting series of observations may be carried out. The Thistles, for instance, when they first come above ground in the early Spring, appear in the form of a dense rosette of leaves, and thus prevent any other plant from growing anywhere in their immediate vicinity.

Other plants, which bear the Thistles company in this respect, are the Common Daisy and the too-often despised Dandelion. Both of these form a stubborn rosette, and refuse to make way for any other form of vegetation. Eventually, however, taller growing plants make their appearance, and almost choke the Dandelions out of existence.

There is a wealth of interest and information to be derived from a study of this battle of the plants, and the young scholar would be amply repaid for interesting himself in this matter. Many plants, that are there, seem to be fighting one against the other. Some appear to steal a march, as it were, over their fellows; others take advantage of the presence of some neighbouring tree or shrub, either to climb, or grasp it, for support.

Since it is interesting to notice how and why these plants climb, let us set out the various organs they possess for performing this function.

1. Leaf climbers (tendrils). Example: White Bryony.
2. Stem climbers (twining stems). Example: Honeysuckle.

3. Hook climbers (small hooks). Example: Cleavers or Goosegrass.
4. Root climbers (rootlets on the stem). Example: Ivy.
5. Leaf stalk climbers (a " kink " or loop in their long leaf stalks). Example: Traveller's Joy.

We will now examine the hedge, and pay special attention to the examples mentioned above, as being likely to afford us a deal of interest.

II.

WHITE BRYONY—THE FOOD OF PLANTS—BLACK BRYONY—HONEYSUCKLE.

It is evident, even to a casual observer, that those plants, which resort to climbing, have weak, slender stems. They are unable to stand up by themselves, but require a support up which they can climb, or to which they can become attached.

Note that White Bryony, for example, from the time when first it comes through the ground! You will then discover that the first leaves to appear have been formed *underground*, and that at the tip of the weak-looking stem, which has been thrust through the earth in early Spring, there are a couple of curious thin growths. What, then, are these? Continue your observations more closely, for once the Bryony starts to grow, it is in a terrible hurry to clasp everything that comes within its reach, and in a few days one can hardly recognise it for the same plant.

That it is weak may be plainly judged, for, lo! already its head is drooping, and certainly requires support. The two curious parts at the tip, previously mentioned, now

come to its assistance, for, being elastic, and possessing some wonderful influence which we do not understand, these tendrils—for such they are—clasp a stem of the nearest tree or shrub and, behold, the Bryony is safely anchored! "So far, so good," you may say, "but what happens if a strong wind blows, and the anchor breaks away from its mooring?" Pity the poor Bryony then!

Fig. 1. White Bryony, showing Tendrils and Spiral.

If you examine a tendril a little later in the season, you will learn that it has developed into a wonderful living spiral-spring, and as the wind blows this piece of Nature's machinery, it works to and fro in a manner perfectly easy and suitable. This tendril is very sensitive, and if you touch it with your finger, it will commence to coil itself round after being stroked.

Is Bryony better off as a result of clasping its fellows, thus keeping well up in the hedge? Would it not grow equally well if it had no living springs to set in motion, but allowed itself to trail along the ground? Certainly not, for experience has taught us that plants, by lifting their stems and leaves into the air, are better able to expose them to the light, with the result that they can manufacture starch with more success.

You must not forget that all living things require food, and that trees and plants form no exception to this universal law. Let us, therefore, consider how these plants obtain

Flower of Bramble

White Violets

Fruit of Black Bryony

Honeysuckle

their nourishment. Water is absorbed from the ground by means of the roots, and this in time reaches every living part of the plant. In addition to this, the leaves, pierced with thousands of minute mouths called stomata, have the power of taking in air, and this, you are doubtless aware, contains what is known as carbon dioxide. Again, leaves possess a green colouring matter, and it so happens that the

Fig. 2. Leaf and twining stem of Black Bryony.

Fig. 3. Fruit of Honeysuckle.

latter, *under the influence of sunlight,* can so act upon water and carbon dioxide as to produce starch, upon which the plants feed. Thus you will readily understand why Bryony climbs, and how absolutely necessary light is to all such vegetation. It is worthy of note, that the starchy matter found in turnips, potatoes, rice, bulbs, roots of all kinds, and many varieties of seed, is nothing more than food stored up for the future use of the plant.

It may also be as well to remind you, that there is no connection between White and Black Bryony, although both plants bear red berries; the former climbs by means of tendrils, and has rough leaves with toothed edges; the

Black species, on the contrary, has heart-shaped leaves with smooth edges, and climbs by means of its stem.

Close by the Bryony, firmly clasping a stem of the Nut Hazel, is the Honeysuckle, a fine example of a stem climber. Notice that the stem of this sweet-scented plant is always turning to the right. See how strongly and securely it

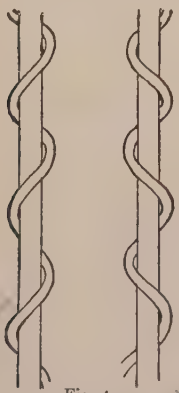


Fig. 4.
A. Left-handed Climbing Stem.
B. Right-handed.

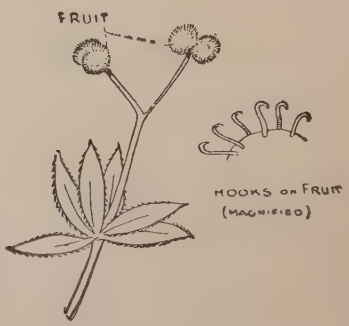


Fig. 5.
Cleavers, or Goosegrass.

grasps the stem of the Hazel. Can you guess why it is that the Honeysuckle is so fond of caressing the Hazel in this way? Why does it not pay as much attention to other trees and shrubs? Probably because the stem of the Hazel is usually very smooth, and unhampered by numerous branches. Here then, perhaps, is the secret of the Honeysuckle's preference, for it finds the smooth clear stem very inviting, and straightway climbs to the top, there to remain for life.

When next you see the Scarlet Runner Bean growing in the garden, or the Convolvulus in the hedgerow, or the Hop in the field, look at their twisted stems, and you will perceive

that, whereas the Honeysuckle and the Hop *turn to the right*, the Bean and the Convolvulus turn *to the left*.

III.

CLEAVERS—IVY—BRAMBLE.

NOTICE how densely crowded the hedgerow is with a very frail looking plant, whose square stem, though extremely rough, is very feeble; were it not for support, it would surely stand a poor chance of success. No difficulty will be experienced in recognising it, for the lance-shaped leaves grow in rings, and vary in number from six to nine in each ring. Some children call these plants "Sweethearts," because of the manner in which they "stick" to a person's clothing. The correct English name is Cleavers, or Goosegrass. The tiny seedlings push through the sunny bank in the earliest days of Spring, but, by the Summer, many of the shrubs that help to form our hedge are simply covered with them. They have smothered everything, and in places one might almost call this the Goosegrass Hedge.

When the plants die down in Autumn, the fruits present a curious sight. These are double, and consist of two circular lobes pressed together, and crowded with hooked spines, that cling to the fur or feathers of any creatures that may visit their vicinity. This may or may not cause some inconvenience to the bird or mammal which thus becomes decorated, but so far as the plant is concerned, all is well, since the seed, which in due time should produce a further supply of Cleavers, is scattered in all directions.

This brings us to the Ivy. Upon the bank of our hedgerow, and around the tree not far away, it is found in great quantity. This is a good example of a root climber, and to

understand exactly how it does its work, it will be advisable to obtain a small sprig. One of those pieces, which cling so closely to a tree and which are so difficult to get off, will best serve the purpose; but, failing this, any other will suffice.

How does the Ivy cling to its support? Notice that the piece you hold in your hand clings by means of a number of short, pale brown or whitish outgrowths, which spring only from the shaded side of the branches, that is, the side in contact with the support, and away from the light. They make their appearance opposite the points where the leaves first begin to appear, but later on they develop all along the stem. Now, in reality, these growths are roots. How can we tell this? By reason of their colour, and also because they grow away from the light towards the dark.

Fig. 6. Ivy, showing leaves, stem, and roots.

Now stoop down and pull up a longer piece of the Ivy, among which the Robin so dearly loves to hide her homestead, and lay her freckled eggs. What can you see on its under-side? There you will find well-developed roots, which serve the double purpose of anchoring the plant in the soil and of nourishing it. You will observe that these roots strike downwards into the ground, and that there are root-hairs upon them. We see from this, therefore, that the Ivy is really a very wonderful little plant, and that it can either trail along the ground, forming roots as it goes, or climb, not only a hedgerow, but a giant tree of the forest, or wreathe an old historic castle with its evergreen leaves.

The yellow-green blossoms of the Ivy in September and October attract a large number of insects, especially moths. Here they assemble at nightfall, to sip the nectar within the

blossoms, and to hold high revel, as it is the last great insect feast of Nature's year. Bees also are very fond of visiting the Ivy blossoms in large numbers, and may thus be seen on a bright Autumn day.

The Bramble in the hedge cannot fail to attract attention, for it may be looked upon as the king of scramblers. Notice the prickles or hooks with which the plant is clothed for the purpose of clinging to other plants, and note also how it throws out long trailing branches, which often touch the ground, take root, and send up new shoots.

Fig. 7. Fruit of Hawthorn (Haws).

Now, although the stems are thin, they sometimes grow very long, for by using up its food for growth in length, rather than for thickening, the plant is enabled to mount the hedgerow and tower above its fellows. When the Bramble is in flower, how the insects of various kinds love to take toll from the sweet nectar found within the white or pink blossoms!

You will find, too, that some insects lay their eggs upon the leaves of the Bramble, and the larvæ (or caterpillars), when hatched the following Spring, feed upon the leaves. When they have eaten sufficient, and changed their skins several times, they are ready to pupate, or turn into a chrysalis. Later, the perfect insects emerge, and leave their chrysalis case still hanging upon the bush.

You will soon begin to think that the Bramble is really a very obliging and useful plant, but if you will inquire into the animal and vegetable inhabitants of our hedgerow or else-

where, you will find that all, more or less, attract or depend one upon the other.

Nor must we forget the Blackberries, the well-known fruit of the Bramble. During the Autumn and Winter, various kinds of feathered friends may be looked for along the hedgerow. The Greenfinch is especially fond of Blackberries. He not only chooses the hedge as a nesting-place, but also as a convenient centre for feeding.

IV.

WILD FRUITS—TRAVELLER'S JOY—WILD ROSE—NUT HAZEL.

It may be as well to remind you that there are several other kinds of fruits in the hedgerow, which attract a wealth of bird life. Thrushes and Blackbirds feed upon the Hips (Wild Rose) and Haws (Hawthorn); the Bullfinch is especially fond of the jet-black berries of the Privet; and our Winter visitors, the Fieldfares and the Redwings, pay their respects to the bright red berries of the Wayfaring Tree.

See how the Traveller's Joy or Wild Clematis festoons the hedgerow with its welcome blossoms. This is another fine example of a climber, and if a specimen of the stem be secured and examined, the leaf stalks can easily be noted; these, being sensitive, when they touch a support, move round so as to grip hold of it firmly. The leaves are usually composed of five leaflets, a terminal, and two pairs below it.

In some parts of the country this plant is known as Old Man's Beard, because of its greyish-white feathery "awns," or bristles, that are to be seen during Autumn and Winter; these are the seed cases of the plants. Many species belong-

Fruit of Bramble

Cleavers or Goosegrass

Greater Stitchwort

Cow Parsnip, or Hogweed

ing to the Clematis family are useful in covering trellis work and unsightly places in the garden, being quick growers and of graceful habit.

The mention of the chief hedgerow trees, shrubs and other plants would be very incomplete without reference to the Wild Rose. Although we are not concerned in this book with the dry details of plant and animal life, yet the chief

Fig. 8. Fruit of Privet.

Fig. 9. Traveller's Joy in seed.

parts of a flower are so often mentioned, and play so important a part in the world of Nature, that perhaps we may be forgiven if we deal with them here. It must not be thought that every blossom is built upon one unchanging plan; on the contrary, the variations and modifications are so numerous as to be quite bewildering, especially to beginners. We, however, will only deal with a very simple case, by taking that of the Rose blossom.

Note, then, that on the outside there are five rather thick green leaves with ragged edges; these are the sepals, a most

suitable name, by the way, for it means to enclose. If you desire a name for *all* the sepals taken together you must use the word calyx or cup. Within the calyx are five petals, those beautiful flower leaves which give the colour to the blossom. Here again the name exactly fits the case, for it means a leaf or a thin plate of metal; you have only to

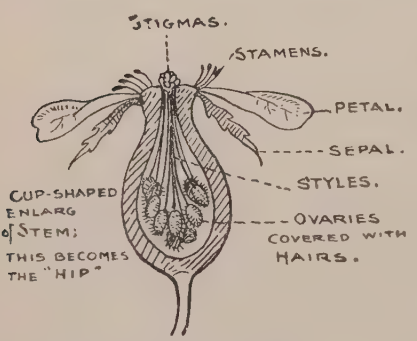


Fig. 10. Section of Wild Rose.

Fig. 11. Fruit of Wild Rose (Hips).

examine the petals of a few flowers, more particularly those of the Buttercup, to realise the truth of this. Would you also like a name for all the petals taken together? Then you must employ the word corolla, meaning a small crown; now look at an opening bud and see if you can suggest a better title than this.

In the centre is a cushion from which seem to spring several tiny growths somewhat resembling yellow pins with oval heads. These are the stamens and contain pollen, the former meaning " threads " and the latter " powdered flour." Now let us deal with this central cushion, or pistil as it is called. By cutting it through, we shall discover that it consists of a number of carpels, each of which has a minute head;

these lead down into the ovary or egg chamber which contains a tiny white ovule or seed-egg.

When a golden grain of pollen falls upon the pistil, the former sends down a tiny tube towards the ovule and passes into it; this act is spoken of as fertilisation, and it enables the ovule or seed-egg to grow and form a perfect seed,

Fig. 12.
Rose, showing leaves, thorns, etc.

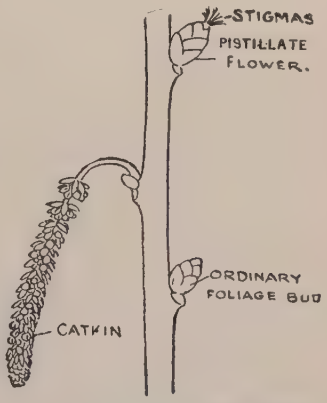


Fig. 13. Nut Hazel, showing catkins and female flowers.

capable of producing a Rose plant. A most interesting subject is the study of the various methods by means of which plants become fertilised, and the numerous devices that they have adopted for enticing many kinds of insects to visit them, so that pollen may be carried from one flower to another.

Gardeners are always on the look out for what is called "Reversion," that is to say, the tendency which many cultivated plants have to go back to the type from which they sprang. This is particularly noticeable among garden Roses, and it is interesting to notice that the beautiful varieties of the queen of flowers, one sees in gardens, have been pro-

duced from the Wild Rose, which so gracefully ornaments the hedge.

What has happened may best be seen by examining a specimen of a Wild Rose and a cultivated variety. The latter possesses many more petals than its uncultivated relative. The secret is, that the gardener, in producing the cultivated Rose, has managed to convert *the stamens and pistils* of the wild species *into petals.*

If the Bramble is entitled to be called king of the scramblers, the Wild Rose is almost, if not quite, its successful rival. Where this Rose has a good chance to ramble and scramble at its own sweet will, it soon makes headway, and leaves very little room for its fellows. Yet we would not part with the Wild Rose of England, for when in flower, it makes one of the great floral shows of the country-side. The delicate petals are unfolded in the early days of June, and show up well against the dark green leaves. Later in the year, the rich red " hips," or seed cases, attract a host of feathered fowl to feed upon them.

Mention has already been made of the fondness which is displayed by the Honeysuckle for the Hazel. But are we not all fond of it too? Is it not one of the first things we look out for as soon as the New Year begins?

Even before the last of the Autumn nuts has been plucked, we may note upon the branches a cluster of little hard green cylinders, which, lengthening during the Winter months, become the familiar catkins—the so-called " Lamb's-tails "—of February. These contain the pollen, and as they swing to and fro in the breeze, the golden dust is scattered all around.

By far the greater part of it falls to the ground, and is never heard of again ; some grains, however, have a more useful career, as we shall presently see.

Look carefully at the upper part of each branch, until you have discovered some short fine crimson threads coming from what, at first sight, appears to be a leaf bud. These threads are part of the pistil, and here it is the pollen does its work of fertilisation, the result of which will be seen next Autumn, in the shape of a cluster of wood nuts.

V.

ROSE GALL AND ROSE-GALL WASP—HERB ROBERT.

If it be Autumn you may find a gall upon the Rose bush. Probably you already know this curious growth as Robin's pincushion, but did not know it was a gall. Such it is, however, and we shall do well to obtain a specimen and examine it carefully.

Note the moss-like or fibrous-looking growth, and its bright red colour. It is formed by a Gall-fly, and this is what happens. The female Gall-fly chooses the Wild Rose bush as a spot where she may safely lay her eggs in the Spring. She does not, however, like many other kinds of insects, just merely lay them upon or under the leaf, or upon or under a branch or twig. She is far more particular than that, for she goes to the trouble of boring a number of small holes in an undeveloped leaf by means of a sharp little instrument which may be found upon the end of her body, while the leaf is still folded up in the bud. Having done this, the insect proceeds to lay one egg in each cavity, and then flies away.

You all know what happens when your finger is pricked. Irritation is caused, the blood flows out of the hole that has been made, and it is some little time before the wound is healed. Somewhat similar proceedings take place in the

bud of the Wild Rose when it is pierced, but, unlike our wounded finger, it contains living eggs, which soon cause an alteration in the growth of the leaf.

Well, the sap gathers round the spot where the holes were made, a noticeable swelling is seen around the punctures, and the bark slightly cracks. From these small holes the sap escapes, and takes the form of curious moss-like or fibrous growths, spurred on either side with soft material. The eggs duly hatch, the larvæ penetrate deeper into the tissue of the leaf, and eventually, as a result of the great irritation that has been caused, an enlargement of the affected part is seen. The fibres become matted together, until at last the ball-like cluster appears like the one we are now examining.

Produce a knife and cut the curious growth open right down the centre. What do you see? Little chambers, or cells as they are more properly called, each containing a white, fleshy, legless grub. This, then, is the little fellow which has come from the egg laid in the Spring, and, having passed through various changes, found himself very snugly tucked up in a nice apartment until we disturbed him. Several cells may be found in the interior, and it will be noticed that the nearer one gets to the centre the harder the growth becomes.

What is the object of the eggs being laid in this way? So that the young may be safely sheltered during the Winter. How does this little fly know she must adopt such a marvellous provision for her family? This question, and others concerning the insect creation, have in vain taxed the brains and the ingenuity of some of our greatest men.

You may count two or three dozen of the cells in the centre of a good gall, and every cell will be tenanted by a lively

grub, which twists and coils as if very much upset at our interference with its domestic affairs.

In this snug position, then, the grubs pass the long Winter days, secure from the rigours of king frost. When the Spring days arrive once more, the grub makes preparation for the final change to a chrysalis, and at length the perfect insect —the Rose-gall Wasp, to give it its true name—proceeds to work its way out of the mossy home, and takes to flight during June.

As we stepped across the ditch to the bank to reach the Rose gall, there at our feet the bright pink petals of Herb Robert attracted attention. The herbage upon the bank is so luxurious that we hardly noticed the plant before. It belongs to the family of Wild Geraniums or Crane's Bills, of which there are a number, some of them being rather difficult to identify. The Dove's Foot is a very common one, but Herb Robert is perhaps the commonest of them all. They are all easily recognised when in fruit, by reason of the long seed vessel, which has earned for them the names of Stork's Bill and Crane's Bill.

Herb Robert is not a particular plant, and any obliging hedge bank will suit it well. It seems to thrive in the sun as well as in the shade. When the May blossom is almost ready to burst into milk-white bloom, and give to the hedge one of its fairest garments of the whole year, then one may expect to see the bright pink petals of the plant we are looking at, peeping out from the grass-tangled bank.

The plant has a strong smell which some people consider unpleasant. It grows from one to two feet high, and the red colour of the hairy stem cannot fail to attract attention. Towards Autumn the leaves, which are divided into five or fewer leaflets and then sub-divided, assume the same hue.

Notice how beautifully the petals, usually pink in colour,

are veined with deep red. These veinings are honey guides, and attract insect visitors to the flowers, and thence to the storehouse within.

The seed vessel of Herb Robert is a splendid artillery-man, for it can disperse the seeds an extraordinary distance; indeed, it has been known to throw its seeds a distance of at least thirty feet, so that we must certainly look upon it as one of the best shots of the hedgerow. Why is it called Herb Robert? Because it is said to be named after Saint Robert, a Benedictine abbot to whom April 29 is dedicated; the plant is usually at that time just about to bloom.

It is a good plan to spend a whole ramble along the hedge when the wild fruits and seeds are at their best. A collection may be made of the commoner kinds, and an examination of them afterwards will prove both interesting and instructive.

VI.

WILD ARUM OR CUCKOO PINT—SWEET VIOLET—DOG VIOLET.

ONE of the most interesting of the hedgerow plants is the Cuckoo Pint, or Wild Arum. This is a typical specimen, and is, perhaps, far better known as Lords and Ladies. Notice how boldly it stands up in the Springtime, showing the purple club-like spadix inside the green hood-shaped spathe.

Why is it that the Wild Arum makes itself so prominent? What good purpose is served by its so doing? It has been proved that small insects, attracted by the carrion-like colour and odour of the spadix, climb into the hood. They then proceed downwards for the purpose of securing food, but when they have arrived, they find themselves imprisoned

SNAILS ON DOCK LEAF

LONG-TAILED FIELD MOUSE

Wild Arum before Spathe is Unrolled

Wild Arum showing lower part of Spathe cut away

Fruit of Wild Arum

by long hairs, which permit of easy descent but prevent return.

After a time, the plant sheds its pollen, the hairs wither, and then the little insect prisoners find themselves free. They climb up the fleshy spadix and make good their escape. Very soon, however, the insects feel hungry again. Away they go on their mission, and, finding another Wild Arum, go through the same programme, but in this case, however, their bodies having probably become dusted with pollen from the plant previously visited, they aid very considerably in carrying the precious pollen from one plant to another, and so help to bring about fertilisation.

The green spathe, its work accomplished, gradually withers away, and we really do not notice the plant again until the Autumn; for by this time, as our photograph shows, nothing remains but a mass of berries of a vivid scarlet colour, these being clustered around a short green stump, all that is left of the original plant.

There upon the bank, amidst the long grass and herbage, sheltered from the winds and the glare of the sun by the overhanging bushes, flourishes the Sweet-scented Violet. This, perhaps, is one of our most highly-prized wild flowers, not only because of its fragrance, but because it is among the very first to greet the Spring.

The leaves are heart-shaped and slightly downy, especially underneath, and the edges are somewhat wavy. The flowers vary in colour from deep purple and lilac to pale rose colour, or even white, but all these tints may sometimes be discovered on the same bank. The root stock is perennial, that is to say, it lasts many years; and from one root spring several runners.

The petals are unequal in size and shape, there being two pairs and one odd one; the latter is the largest, and has its

narrow end shaped like a round tube, which, instead of being hidden in the sepals, stands out beyond them like a spur. It is in this spur that nectar is secreted and, as a consequence, it is here that the Bee pays his visits.

There is another species called the Dog-Violet, but this, unfortunately, has no scent, although it is a charming flower in other respects. Generally speaking, the leaves and the stem are smooth, and do not possess those soft hairs so characteristic of the Sweet Violet. The word "Dog" is often used as a prefix when dealing with flowers, and means worthless, but in this case, as in many others, the suggestion is an unjust one.

When the Spring season is over, the Violet no longer produces flowers for show, but develops buds which remain closed, and which have no petals, apparently with the sole object of strengthening the stamens and pistils, and thus producing perfect seed. It then adopts a most interesting plan for the dispersal of this seed. The ovary splits open into three parts, each of which, by bringing its edges together, shoots out its smooth glossy contents with such force as to scatter them for a distance of several yards.

VII.

GREATER AND LESSER STITCHWORTS—GERMANDER SPEEDWELL—COW PARSNIP.

ANOTHER common, but very beautiful flower to greet the Spring, is the Greater Stitchwort, which may be looked for when the Primrose, the Wild Hyacinth, and the Wood Anemone are in bloom. Each of its pure white blossoms gleams like a clear cut star. At first sight one would imagine there were ten petals, but more careful examination will

prove that there are only five, each of which is cleft almost to the middle.

The brittle grass-like stems have lines of short bristles running up each side, and the tips of the pointed narrow leaves usually curl back. This grass-like form enables it to hold its own against its neighbours, for it can fill up gaps where plants with wider leaves would be starved.

There is another species of Stitchwort that blooms later in the year than the one we have just been looking at. It is known as the Lesser Stitchwort, because it has a smaller flower than that of the Greater species. It grows in companies, and, when the flowering period is at its height, the effect of the pretty little white stars peeping out of the hedgerow is very charming.

Earlier botanists studied plants from a medicinal point of view, and it was thought that nearly all had some healing power; hence we are constantly coming across such words as Wort and Bane, both of which suggest a remedy against a disease or pest; thus we have Woundwort, Lousewort, Milkwort, Pennywort, Fleabane, Henbane, and Leopard's Bane.

But what is that cluster of bright blue flowers which look so like the Forget-me-not? Those are the Speedwell, but since at least sixteen distinct species of this plant are known to flourish in the British Isles, we shall confine ourselves to the particular type we are now examining, which, to give it its full name, is the Germander Speedwell.

It is a slender wiry plant, and its stem sometimes creeps along the ground and takes root again before growing upward. Its dark green leaves, thickly covered with soft silky hairs, are egg-shaped, coarsely toothed, and have very short stalks.

Now look down upon the blossom and count the four bright blue petals. Notice also the small circle or zone of

white, which, with the tiny green seed vessel, forms the centre of the flower; here we have the reason why some people call this flower Bird's Eye, and others name it Cat's Eyes. Those dark blue lines, running down each petal towards the centre, merely indicate the road to the nectar, and it is thought that insects are thereby assisted in finding this sweet juice.

Another plant of the hedgerow, specially deserving of mention, is the Hogweed or Cow Parsnip. Its leaves are woolly, large, and very irregular in shape; they are covered with rough hairs, and more often than not with dust too. Cattle feed upon it in large quantities and seem to thrive thereby, and this fact, perhaps, may have given rise to its names.

Fig. 14. Umbel of Cow Parsnip.

It has a thick, hollow, rough, and hairy stem, which often grows to a height of four, or even five feet. Near the top of this are the branches, so arranged as to make one think of the ribs of a Japanese umbrella. Indeed, when the plant is in full bloom, an excellent shelter is provided, such as might do duty for elves and fairies in time of rain. This umbrella-like arrangement of flowers is termed an umbel, a word derived from the Latin, and meaning a screen. The five white or pinkish heart-shaped petals, of which each flower is composed, are irregular in size.

Can you guess why this umbel has all its blossoms massed together in such a way that it looks like a flattened bouquet? It is only another method of attracting insect visitors, and

thus of ensuring fertilisation; for you must always remember that the final work of a plant is to reproduce its kind by means of seed.

During the Winter the dry hollow stems of the Cow Parsnip may still be seen standing erect, but, although deprived of their former glory, they still afford a welcome shelter for very small insects; the tiny holes, which the latter have bored to gain admission, may easily be found.

VIII.

FOXGLOVE—HUMBLE BEE—WHITE DEAD-NETTLE—HONEY BEE.

A FOXGLOVE stands up sentinel-like, as if it, at any rate, will not consent to die without a bold struggle for existence.

A fine show it makes in the hedgerow, as it stands from two to six feet high, with its lower leaves wrinkled and somewhat downy; whilst higher up the stem are numerous purple bell-shaped flowers. It is not out of place to speak of the flowers as fairy bells, as we find that originally the name of Foxglove was "Folks'-glove," that is "Fairies'-glove."

Fig. 15. Humble Bee.

One need not watch the Foxglove very long before getting on intimate terms with other inhabitants of the hedgerow, for the Humble Bees dearly like to visit the storehouses of honey secreted in these fairy bells.

Indeed, wherever there is a hedgerow decked with wild flowers, there, sure enough, one may look for the Humble or Bumble Bee. And what brings him here this bright Summer morning? Listen to his humming! Does he not make a

fuss and a commotion? Truly a fussy and bustling individual is the Humble Bee, but what a sweet pillage is his among the flowers. Why does he come to our hedgerow? The stately Foxglove growing there is the secret. See how he visits one by one every fairy bell as yet open. In and out of the thimble-like corolla he goes upon his pilgrimage,

Fig. 16.

Fig. 17.

Fig. 18. Fig. 19.

bringing his body now and again against the stamens with their stores of pollen, and thus doing the same service for the Foxglove as the Hive, or Honey Bee, does for the Dead-Nettle.

Watch our friend the Humble Bee now. How unsteady he seems. What can be the matter? Is he damaged in any way and finding flight difficult? Now he has fallen to the ground, and lies there on his back, buzzing loudly and struggling violently. Leave him alone, and he will soon recover. He has taken more nectar than was good for him, and has become intoxicated.

The Dead or Stingless Nettle is also a prominent hedgerow plant, and is easily distinguished by its square hollow stem from the Stinging species, whose stem is round and solid. It rarely, if ever, appears to be throttled by its companions, but blooms throughout almost the whole year. There are three common kinds of Dead-Nettle. One, the Red Dead-Nettle, is a somewhat dwarf species and has a purple corolla; the second is of a most beautiful yellow colour, and is known as the Archangel; and the third is pure white. Of the three the latter is certainly the most upright in growth, and also perhaps the commonest.

Now pick a piece of the White Dead-Nettle, for preference a complete plant. You will at once observe that it does not "sting," the stalk is square, the pointed serrated leaves are arranged in pairs, and the white, scentless flowers are borne in whorls or rings, and are situate in different "stories." The hairy character of the Dead-Nettle flower will by this time have been noted. Why is it hairy? For the purpose of keeping out unbidden and useless insect guests. The upper lip protects the stamens and pistil, and the lower lip serves as an alighting platform for a Bee.

If possible, a Bee should be carefully watched when entering a flower. It will then be seen that, having alighted upon the "platform," the insect at once proceeds to dive into the interior, and work its way down the corolla tube. During the course of its movements, the body comes into contact with the long pistil, upon which the Bee unconsciously deposits some of the pollen gathered from a flower previously visited.

As the Bee proceeds towards the interior of the flower, thrusting its body well into the tube, the hind portion is brushed several times against the stamens at the top of the flower, and so it gets dusted with pollen again. In this way the

White Dead-Nettle, and other plants claiming kinship, become fertilised.

You will now understand more clearly why it is that the Dead-Nettle so often flourishes on the bank of a hedgerow; why it is that it contrives to grow in such a stately way, and how distinctly useful the plant is to the insect, and the insect to the plant.

IX.

DOCK—SNAIL—TIGER MOTH—GREEN-VEINED WHITE BUTTERFLY—HEDGE GARLIC.

YONDER Dock, with its large strong leaves and roots so firmly embedded in the earth, forms but another of the countless examples illustrating the dependency of the animal upon the vegetable world.

Although we find it growing by the hedge, many of this species prefer watery places. They have great tap roots, and are with difficulty expelled when once they have taken occupation of a piece of ground, not only because of the firm anchorage exercised by their roots, but because they multiply so rapidly from seed.

But though these plants are detested by the farmer, the Snail is not quite so difficult to please. Often we may find him making his way over the sturdy leaves, especially in warm, damp weather, when he dearly loves to crawl among the vegetation and low-growing foliage. How often have we turned our backs upon these silent, slow-moving creatures, without once giving them more than a passing thought, and yet how intensely interesting they are!

Let us first of all examine one of their shells, and look

1

2

3

4

5

Life History of Small Tortoiseshell Butterfly

1. Batch of Eggs highly magnified
2. Larva, or Caterpillar
3. Pupa, or Chrysalis
4. Perfect Butterfly resting on Bark.
5. Set Specimens showing Upper and Under-Sides

Tiger Moth and Pupa Case

Green-Veined White Butterfly

for those numerous lines running parallel to the edge; these are termed lines of life, and mark the successive positions occupied by the free edge during growth. If we are fortunate enough to discover a Snail, which has only recently added to the size of its shell, we shall learn that the newly formed part is very thin, and can be easily bent; but in the course of a few days this hardens and becomes as strong and firm as the original.

But what are those black spots at the ends of the two long horns? Touch them gently with your finger, and watch them disappear as if by magic. These black spots are the eyes of the Snail, and can be withdrawn into the body until the horn assumes the shape of a finger of a glove, which has been pulled down into the glove-hand.

Now place the Snail upon a piece of glass, and feed it with a small portion of moist bread. If it be hungry, you can, by inverting the glass, watch its method of eating. The ribbon-like tongue—properly called the radula—may be compared to a minute rake or harrow, for it is covered with rows of very small teeth which point backward and act as a rasp.

If during the months of July and August—the spawning season—we search the moist places beneath the dead leaves or loose stones, we may chance upon patches of the eggs of these creatures. Each egg is protected by a rounded leathery shell, measuring about one-sixth of an inch in diameter. Before the approach of Winter, these eggs will hatch out, and then the Snails, both old and young, having each closed the door of its house by a thin, porous lid, seek shelter from the cold and frost in some cosy nook, or even in the earth itself.

Snails are not the only guests which pay a visit to the Dock leaf, for the "Woolly Bear" caterpillar may often be

seen enjoying a good meal off this and the neighbouring Nettle leaf. This furry-looking creature is the larva of the Garden Tiger Moth, and at times is so plentiful as to become a pest.

The Tiger Moth, one of the commonest but most highly coloured of its kind, is so called because of the peculiar tiger-like markings on its ample wings; and although one very rarely finds two specimens exactly alike, yet a glance at the picture opposite page 47 will give you a good idea of its general appearance, and prove that its name is well deserved.

Do you know the difference between a moth and a butter-

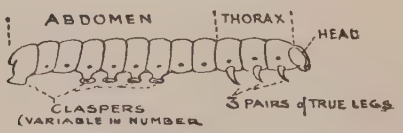


Fig. 20. A Larva or Caterpillar.

fly, so far as its shape is concerned? If not, compare the Tiger Moth with the Green-veined Butterfly illustrated, and you will notice that whereas the horns, feelers, or antennæ of the moth taper to a point, those of the butterfly are clubbed. This simple fact will nearly always enable you to distinguish the one from the other, unless you are dealing with those found in foreign countries, when this rule will not hold good. Many male moths, however, are provided with saw-like or comb-like feelers, while those of the females are simple.

Should you desire to know more of the Green-veined Butterfly, you must first search for its pale eggs, which are laid singly on the leaves of Hedge Garlic or plants of a similar type. Keep these until the caterpillar comes, when it will

be noticed that it is green above and whitish-grey beneath; those not in captivity may be found any time from June to September.

But one of you may exclaim, " We don't know what this Hedge Garlic is like! " Then look out for a tall, erect plant with a smooth stem measuring from two to three feet, and with heart-shaped leaves having toothed edges. Some of these can be seen at the top of the coloured picture of the Greater Stitchwort opposite page 27. Perhaps the best

Fig. 21. Leaf of Hedge Garlic.

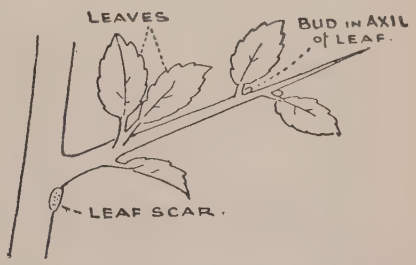


Fig 22. Hawthorn, showing Leaves, etc.

way of making sure you have discovered the right specimen, is to rub one of its leaves between your fingers, and you will at once note a strong, garlic-like odour.

The flowers are white, and grow in a cluster at the end of the stem; the four petals are arranged crosswise, like those of its cousin, the Wallflower. Some people call this plant Jack-by-the-hedge, while others christen it Sauce-alone.

X.

CHAFFINCH—LONG-TAILED TIT—GARDEN WARBLER—HEDGE SPARROW—THE YOUNG CUCKOO—YELLOW BUNTING.

One side of the hedge is very sheltered from the cold winds of early Spring, and it is here that the sheep and lambs lie at night. They get as close to the hedge as they can, and there the Bramble, the Wild Rose, the Blackthorn, and other prickly plants rob them of some of their wool.

It so happens that the Chaffinch builds its mossy cup-shaped cradle near by, and this wool is largely used in building it.

An old stump not far away is covered with moss, an Oak tree with lichen; both of these are visited by the Chaffinch in turn; thus with the wool, moss, and lichen, a few sticks and grasses from the hedgerow perhaps, hair shed by a horse or cow, and even cobwebs, the bird constructs its wonderful model homestead.

There are probably only two or three other birds which build such a lovely nest as that of the Chaffinch, and these are the Goldfinch, Goldcrest, and Long-tailed Tit. The latter bird constructs a most remarkable homestead, and has been known to use over two thousand feathers in one nest, each feather representing a separate journey. Whilst we may perhaps find the nest of this active little bird in the hedge—a Black or White Thorn bush being a favourable site—it is also fond of Furze bushes, and there perhaps we had better search for it.

We are, however, bound to meet with a party of Long-tailed Tits along the hedgerow at some season of the year, for they dearly love to hunt together for food in this way. Possessing, as these birds do, a soft flight, a little rounded

body, a very long tail, most active and engaging ways, and an agreeable querulous note, they cannot fail to attract attention when seen. They are, however, so quiet in their movements, so light and buoyant, and so engaged in their work searching for insects or larvæ, that one has to look out for them most carefully before they can be seen.

A little company of a dozen or more may be in possession of a certain part of the hedgerow, sedulously searching every

Fig. 23. Long-Tailed Tit.

nook and corner for insects; but apart from a chattering there is very little to indicate the presence of such a number of birds. As the feathered acrobats—for such they are—hang head downwards, it is most interesting to watch them, so much so that they have been called "little monkeys in feathers."

The Tits will not mind in the least being watched. They still pursue their feeding operations, moving on when they are ready, and not before. A whole hedgerow is worked by these birds in this way, and the number of insects of which they rid the land must be enormous. When they fly, the long tail may be very plainly seen. The flight is jerky and not long sustained.

Another bird, that may be found in the hedge, is the Garden Warbler. It often builds its flimsy nest in a Bramble bush, and is thus hidden among the leaves, and well protected by the prickles.

Should there be a Sycamore tree along the hedgerow this bird will delight to hide among its leaves. Here, too, it secures an abundance of insect food, singing the whole time sweet plaintive music. Although it is comparatively common, yet it is but little known, probably because it is rarely seen or heard unless one looks or listens for it. Although called Garden Warbler, it is not found solely in gardens; but in a dense hedge, or little coppice, it dearly loves to make its home. It is brownish-yellow in colour, much lighter on the breast than on the back.

This bird is one of our Summer visitors. It spends the Winter months in Africa, but as Spring draws near it leaves that country, and, by easy stages, commences to travel over land and sea until it reaches England.

The wonderful subject of the migration of birds has been studied and described by many naturalists, who have spent much time and thought on the matter. The most remarkable points in connection with bird-migration seem to be that birds, who have never left this country before, find their way unaided to unknown lands, and that a wonderful instinct guides these feathered wanderers back to the old home again.

A pair of Swallows, for instance, upon which a watch was kept during the Summer, returned the next Spring to the same house where they had previously nested. The Nightingale, and many other birds of passage, return to the same haunt year after year, and although we have learned a great deal concerning these migration movements of the feathered tribe, much remains to be accomplished. In this good work every young naturalist can help, for, by continuous observa-

tion of bird movements, a story of much importance may be pieced together.

Listen! Do you hear that low plaintive " cheep, cheep," uttered by a bird of some kind? Peep into the Bramble and you will see its nest. It is wrongly named Hedge Sparrow, for it belongs to the Warbler family, and is not a Sparrow at all. It sings a cheerful little song, and is often spoken of as the Hedge Warbler. It is an elegant-looking bird in its steel grey and brown dress, something like a Robin without a red breast; it builds a mossy nest lined with wool, hair, and feathers, and lays beautiful pure pale blue eggs.

Fig. 24. Yellow Bunting.

It is interesting to notice that in England the Hedge Sparrow's nest is the one often chosen by the Cuckoo in which to place her egg. It is well known, of course, that the Cuckoo does not build a nest of her own.

In Scotland the Meadow Pipit seems to be the favourite foster-parent, and, although many other birds' nests are chosen in both countries, the Hedge Sparrow is easily first favourite with us, and the Meadow Pipit in Scotland. Perhaps we may find a Cuckoo in the hedge, for she may be there for the purpose of depositing an egg in a nest, or searching for food, such as the hairy caterpillar of the Tiger Moth, which we have already seen inhabits the hedgerow.

Very few birds eat hairy caterpillars, and thus the Cuckoo, by feeding upon these, performs good service in keeping the

same in check. When the young Cuckoo is hatched the Hedge Sparrows have to search diligently and unceasingly for food wherewith to feed their foster-child, for it has an enormous appetite. It is necessary the young Cuckoo should be well fed because, up to the time he is about ten days old, he has the habit of turning out of the nest in which he is born either the eggs, or the young birds, belonging to the rightful owners. As a consequence, his strength is often exhausted, and doubtless the countless caterpillars he has so greedily devoured assist him to repair that loss.

Many people consider that in throwing out the eggs or young birds of the rightful owners of the nest, the young Cuckoo should be condemned as a vagabond in feathers, but, after all, there is a good deal in Nature we do not understand, and this may be one of the mysteries which the future will explain.

Near by is the Yellow Bunting, or Yellow Hammer. This is really one of the most beautiful British birds, but although one meets with it elsewhere, it prefers to haunt a hedgerow, and in the tangled mass of grass near, or upon, the ground, weaves its homestead; this consists of dead grasses, moss, and hair. The white eggs are marked in such a curious way that the bird is called the Scribbling Lark in some country districts; these markings are purple to purplish-black in colour.

Whilst the Hedge Sparrow feeds almost exclusively upon insects, with perhaps scraps in Winter, the Yellow Bunting is to a great extent a seed eater. The male bird has a song that is very sweet, although it only consists of a few notes, and these are often jokingly translated as being like "A-little-bit-of-bread-and-no-cheese." He pays remarkable attention to his little wife, and takes his turn in hatching the eggs.

Nest and Eggs of Garden Warbler in Bramble

Nest and Eggs of Greater Whitethroat

Young of Greater Whitethroat

In the Winter, various kinds of Buntings associate in small flocks, and visit farmyards and other places, while the Hedge Sparrow does not flock, but resorts almost exclusively to the hedgerows, shrubberies, and gardens.

XI.

GREATER WHITETHROAT—STINGING NETTLE—SMALL TORTOISESHELL BUTTERFLY—ROBIN.

Did you not notice, as we walked along, a small brownish bird fly out noiselessly from a clump of Nettles? It was a Common or Greater Whitethroat. See, there the male bird is suspended over the topmost branches of the hedgerow. Notice his curious antics as, flying about in a jerky manner, he seems suspended by an unseen wire.

Listen to his snatchy and somewhat harsh song, for although it is by no means sweet, it is delivered with great energy. Now he is uttering a note of defiance, a still harsher sound, and seems to declare his refusal to be outdone by other birds.

Let us examine the spot from whence this bird flew. Brush the Stinging Nettles on one side, and do it carefully if you would avoid being "stung." Our efforts are rewarded, for there, deftly hung between the Nettles, and fairly low down, is the Whitethroat's nest. It is a very frail structure, composed of the thinner portions of dry grasses, and lined with a little hair.

There are five eggs in the nest, and these are greenish in ground colour, marked with grey, chiefly at the larger end. Though the nest be fragile, one cannot but admire its neat appearance. Cover the homestead up again carefully and do not leave any trace of your visit behind, for this is a

useful bird, feeding as it does upon insects, and deserves protection.

The full number of eggs has been laid, therefore in a week or so you may pay a return visit and see the baby chicks, and perhaps you may then see something like that shown opposite page 57.

We have already mentioned the Stinging Nettle in connection with the " Woolly Bear " caterpillar, but this is by no means the only insect that looks to these plants for a supply of food.

In April, May, and again in July, search should therefore be made on the upper parts of this plant and under the young leaves. If you are vigilant, your efforts may be rewarded, for there the eggs of three beautiful butterflies are laid, namely, the Small Tortoiseshell, the very handsome Peacock, and the Red Admiral. The eggs of the Tortoiseshell and the Peacock are laid in clusters, but those of the Red Admiral are solitary. The full life history of the small Tortoiseshell is shown in the pictures, but it should be stated that the eggs are very highly magnified, and much smaller objects than those shown must be sought for.

The egg is at first green, but after a time becomes tinted with yellow, the ribs standing out clear and transparent. It is only possible to see these eggs of butterflies and other insects to perfection under a magnifying glass, and when thus examined they often reveal much beauty both in form and texture.

When the eggs hatch, the larvæ or caterpillars feed upon the Nettle leaves, thus explaining why the instinct of the female Tortoiseshell led her to lay her eggs in such a well-chosen and protected spot.

It has already been stated that these eggs are found in companies, and when thus located the larvæ are known

as gregarious. The larva is yellowish in colour, covered with black specks and short hairs. Down the back there is a black line, and, on each side, this is bordered with clear yellow. The black, hairy head is speckled with this same colour.

When the larva has cast its skin several times, it shows signs of changing into another form. It becomes less active and eventually pupates, that is, turns into a chrysalis. The shape of this will be seen from the illustration. It is grey or pinkish in colour, but sometimes the top and other portions bear a metallic lustre. When the chrysalis has performed its remarkable change to a perfect butterfly, a very handsome insect presents itself for our admiration.

It will be noticed that the general colour is reddish orange, marked with patches of yellow, black spots, and blue crescents, a very beautiful combination. Watch the insect carefully, for it may take to flight at any moment. It has now closed its bright wings, and the colour of the under-side is quite different from that of the upper. The under-side is dull coloured, and this well protects the insect when it has settled upon the ground or some other similar object, for it is difficult to detect which is the insect and which its resting-place. Suddenly, however, it has taken flight once more, and now has its wings fully extended. Quick as thought a bird darts out of the hedge, hovers for a second or two in the air just over the butterfly, snatches up the latter in its beak, and flies back to the spot from whence it came. What bold intruder is this that has so unceremoniously snatched off and swallowed the little insect we have been watching?

Let us explore the spot where the bird went in. Has he gone? No, there he goes, none other than Cock Robin himself! The rascal! Who would have thought that he could be guilty of such a crime? It is not often we have caught the

Redbreast thus engaged, for he more often feeds upon Earwigs, Spiders, Caterpillars, Earthworms, Daddy-long-legs or Crane-flies, and other creatures.

Search the spot from whence Cock Robin rose, especially among the tangled grasses and between the Ivy. Yes, there is his nest. Is it not a snug homestead? How many eggs are there in it? Five? That is probably all that will be laid, and the female, which is very similar to Cock Robin himself, will soon begin to sit.

The eggs are white in ground colour, freckled with light brown, mostly at the larger end, and will probably take from ten to fourteen days to hatch. At first, the young Robins are covered with black down, but as they grow they improve in appearance, and after a time they have spotted breasts like a young Thrush. Indeed, young Robins are often mistaken for Thrushes, for, until after the first moult, they do not have the cherry-red breast of the full-grown bird.

In habits, Robins are domineering and pugnacious, and are only found in pairs; they often come near dwelling houses in the Autumn, and also when forced to do so by severe weather. Their song is sweet and plaintive, and is uttered at a time when most song birds are silent. Then it appeals to us, but is not much noticed when other songsters abound.

XII.

WEASEL—LONG-TAILED FIELD-MOUSE—BROWN RAT—HEDGEHOG.

WHAT is that moving as quickly as lightning? It is a Weasel. What is he doing here in the hedge? He dearly loves birds and their eggs, and as a consequence ground-nesting birds, including the Partridge, often suffer from his visits. More

often, however, he prefers larger prey, and hunts with great courage and wariness. When we saw him he was just pouncing upon a Long-tailed Field-mouse.

Yes, there are many tragedies in wild life going on in the little hedgerow we are watching, but this is true of each of Nature's communities.

The Long-tailed Field-mouse does a good deal of damage to crops, and the Weasel is, therefore, a friend to the farmer in ridding him of this troublesome visitor, and consequently should be encouraged. The Weasel also feeds largely upon the Brown Rat, which is acknowledged to be one of the worst pests we have in this country. The haystack further along the hedge is almost riddled by it; but if the farmer would only encourage the Weasel, and get one to take up its abode in the stack, he would not for long be troubled with Mr Rat, for it will not stay when the Weasel has come into residence.

Fig. 25. Head and Foot of Weasel.

This mammal is much smaller than its near relative the Stoat. It is reddish in colour on the back, and pure white below, and measures about eight and a quarter inches over head and body. The female is smaller than the male.

The Weasel is not the only animal which is attracted to the hedgerow by reason of a good hunting ground, for to the list must be added the Hedgehog, or Hedgepig, as it is sometimes called. If this animal were not found in a hedge, where else would one expect to find it? True enough names stand for little or nothing in many cases, but in this instance one has not much cause for complaint.

Although we may meet with this interesting creature on hunting expeditions in woods, plantations, and sometimes in

open country, yet it specially loves a hedgerow in which to wander, and it is there, at any rate, we may search for its nest, although it has a preference for the hollows of a tree or crevices in a rock.

Where the hedge-bottom is well supplied with dead leaves, there you may search for the Hedgehog with a hope of being successful. It is a nocturnal or night animal, and although we may come across it several times during the day, it is obvious that it is for the most part a species which hunts very largely during the silent hours.

When the day breaks it rolls itself into a ball, and thus rests, being splendidly protected by a spiny outer-covering. These spines are about an inch in length, and, being remarkably firm and elastic, will act as a cushion to break the creature's fall from a great height.

Some time in early Summer the nest may be found containing from two to four young ones. At first the baby Hedgepigs are clothed in soft white spines and are quite blind. The spines, however, soon harden, the eyes open, and, this accomplished, the youngsters hunt about for food on their own account.

There is an abundance of this in the hedge, for besides the eggs of Partridges and Pheasants, the Hedgehog will eat young birds, and has even been known to enter poultry houses for this purpose. A large variety of insects, as well as Frogs, Toads, Snails, Slugs, Earthworms, and even Snakes, are also eaten. It is very useful in a garden or house infested by Cockroaches. That it does a deal of damage to game is undoubted, but, taken all round, probably the animal does more good than harm.

It is a shy creature, and hates being watched. It has, as our coloured picture shows, a Pig-like face, small black eyes, and short legs and feet. It measures about ten inches in

length, and is clothed on the back and sides with the well-known spines. These are calculated to serve the Hedgehog well, and no animal, except man himself, preys to any extent upon it. When hunting for food, the Hedgehog reminds one very strikingly of a Pig sniffing here, there, and everywhere after anything of an eatable kind.

During the Winter it makes a cosy nest of dead leaves in some sheltered ditch under a hedge, or at the bottom of a tree. There it tucks itself up snugly and securely, and thus remains all through the dark days of Winter. It does not feed during this time, but as soon as the Larks are carolling overhead in early Spring, and the Primroses are peeping out of their leaf-strewn beds, it awakens from its slumber, and loses no time in making preparations for family affairs.

XIII.

DORMOUSE—COMMON PARTRIDGE.

THE Dormouse is another creature which inhabits the hedge. Why is it there? For one thing, this really beautiful little animal loves to hang its round nest of dead grasses in a Blackthorn or Whitethorn bush; and then again the Dormouse finds food in plenty all around, for he feeds, for example, very largely upon nuts, such as can be obtained from the Hazel bush.

In the Winter months, or early in the Spring before the bushes have become covered with leaves, it is a good plan to examine a hedge, and search for the old nests. Most of them will probably belong to the Song Thrush, Blackbird, Greenfinch, Chaffinch, Yellow Bunting, and Hedge Sparrow, but care should be taken to look inside, because the Dormouse, or some Field-mouse, may have built its own cosy

quarters within the bird's old homestead. It may be, however, that you will discover a small round ball of dry grass hanging there. You should gently tap the grass ball to see if anyone is at home.

It is more than probable, if it be early Springtime, a Dormouse will pop its head out of the front door to see who is about and, in less time than it takes to tell the story, the active little creature will have disappeared among the undergrowth.

Fig. 26. Fruit of Nut Hazel.

As this animal sleeps soundly all through the Winter, you may with care find one at that season, tucked up in its warm bed, fast asleep, affording one of the most delightful little pictures in the wild life of England that it is possible to imagine.

Our photograph of a Dormouse asleep will give a much better idea of what the little creature looks like than any written description, but should you be fortunate enough to find a living specimen, put the slumberer back in its grassy home, so that it may pass the Winter quietly and peacefully. Then it will awaken one mild Spring day and choose a wife.

A bird of some kind—and a large one, too—was disturbed from the hedge just now. What a noise it made! A " whirr " of wings, and then 'twas gone! Let us go to the opening in the hedgerow and look over. Yes, there is the bird we disturbed, feeding quite unconcernedly in the adjoining meadow. It is a Common or English Partridge, the most plentiful of all game birds in Britain.

Let us search for its nest. Be careful where you tread, or you may quite unintentionally put your foot upon it. You must not expect to find a nest such as that built by a Blackbird

or a Thrush, and doubtless, if you are lucky enough to locate it, you will be somewhat disappointed.

What shall you look for? Just a few dead leaves upon the ground, hurriedly gathered together, and looking as if an animal of some kind had been sitting upon them, or resting there. You can see several little clusters of leaves that answer the description. True, but you need a practised eye to find a Partridge's nest.

The hunt becomes quite exciting, knowing, as we do, that a number of eggs lie secreted somewhere in the hedgerow and yet we cannot discover them. Pass your finger gently over each little company of leaves, and see if you can feel anything underneath. You can! Let us see what you have unearthed. An egg? Bravo! You have found the missing homestead! Now feel for more eggs under the leaves, and tell us how many there are. Thirteen! The Partridge always covers her eggs over in this manner, *until she commences to sit*, so that it is probable more eggs will yet be added to the number.

The female is rather smaller than the male. The upper parts of both are ash-grey, finely marked with brown and black. The male may be distinguished by a horse-shoe patch upon the breast.

We must return on another occasion and see what further has happened. Then, if we find the mother bird at home, some such picture as that shown opposite page 66 will be seen, and if we carefully put her off the nest we shall discover the eggs nicely packed together, as depicted in the photograph on the same plate.

You would be interested to see the young Partridges soon after they are hatched. They do not stay in the nest like most young birds, for it is necessary that birds building upon the ground, being exposed to numerous four-footed

and other enemies, should, soon after hatching, be able to run about and take care of themselves.

Many young Partridges and Pheasants have been helped into the world by having their shells gently broken open. No sooner have the little chicks been set free than they have run about in a pretty and most active way, and have soon become strong enough to gain their own living.

XIV.

OIL BEETLE—SYCAMORE—COMMON MAPLE—ORANGE-TIP BUTTERFLY—HEDGE MUSTARD.

WHAT curious-looking individual is this that comes blundering across the pathway towards the hedge? She is in no hurry to get out of sight, that is plainly to be seen. Stop her before she is lost to view in the thick herbage by the side of the bank.

Now pick her up and examine her closely. The body looks too big for her. She is about an inch and a half long, dull blue-black in colour, the surface closely pitted, and the wing-covers looking too small for the hind part of the body. Pick her up if you would learn why the name of Oil Beetle has been conferred upon this handsome, if somewhat cumbersome, species.

Now see, a globule of yellowish oil has come from between the joints of the legs. What purpose does this serve? As a means of warning various animals which might otherwise eat her, that she is of an offensive nature; indeed this Beetle possesses no other defence of any kind.

She has been tempted from her hiding-place. What is she doing? Hers is a wonderful mission. Early in the Spring she selects a warm spot on a sunny bank, and deposits a very

Common Partridge Sitting on Nest

Nest and Eggs of Common Partridge

Robin Entering Nest

Nest and Eggs of Robin

(Photographed at close quarters to show eggs large and in detail)

large number of eggs in a crevice in the earth. Having laid them, she, like nearly all other insects, takes no further heed of them. The eggs hatch in due season, and from each there comes a tiny grub, active in disposition.

Each grub then undertakes a journey into the very heart of a flower of some hedgerow plant, and waits. Presently a Wild Bee comes along to gather honey or pollen for her young ones. She dives into the rich storehouse of the flower, and, whilst sipping up the sweet nectar or busily engaged gathering pollen, the grub of the Beetle seizes its opportunity, climbs among the hairs upon the Bee's body, and waits patiently for the latter to fly away bearing it with her!

Fig. 27. Oil Beetle.

The Bee returns to her nest, and proceeds to fill one of the empty cells with pollen, for the use of the Bee larva. But the industrious creature has reckoned without her host, for the Beetle grub eats both egg and Bee-bread. Soon the intruder casts its skin, and in so doing its active legs are got rid of, it having no further use for them. Eventually the outer case of the pupa, or chrysalis, breaks, and the perfect Oil Beetle comes forth triumphant, after having passed through what must really have proved a very exciting period.

The hedge contains at least two kinds of Maples. The Sycamore we have already referred to in connection with the Garden Warbler, but it is as well to notice that this beautiful tree is a near relative of the Common Maple. It is sometimes called the Great Plane, and lives from 150 to 250 years. It is a rapid grower, and is now largely distributed throughout the country. This is the more remarkable when it is remembered, that as recently as the four-

teenth century, it was looked upon as a rare tree from abroad. Two of our old writers have written of the Sycamore that " it specially is planted for the shadow-sake."

The Common Maple is mostly found growing in thickets and hedgerows. It flourishes along a dry hedgerow, and will also grow under the shade of other trees. The leaves are much smaller than those of the Sycamore, and the bark is very corky, and brown in colour. The wood is soft, close grained, but beautifully veined, and looks very handsome when polished.

The leaves which are broad at the base, and have five main lobes, are often attacked by Mites. These little creatures produce the small pimple-like red galls which have perhaps attracted your attention.

Look, quickly, there flies the first Orange-tip Butterfly of the season. Does he not look a picture as he pursues his way along, for it is the male which possesses the orange-tips on the wings, those of the female being blackish-grey. Let us follow him closely and see exactly what he is like, and learn what business he has to transact at this spot.

Here is the Orange-tip settled upon a Bramble bush. Is he not a fine fellow? Notice his fore-wings. These are white, or creamy-white, with a patch of orange, but the tip is blackish. The greenish markings on the under surface of the hind wings often protect him, for they make him appear so like the surrounding vegetation that his enemies fail to see him very easily. The female is of a more sombre colour, and still more difficult to discover when her wings are folded; we may find one resting along the hedgerow which could not possibly have been seen had we not stooped down to look at something else, and thus chanced to see the butterfly.

Look! there goes a female Orange-tip, and see she has

settled on a somewhat tall-growing plant bearing small yellow flowers. This is the Hedge Mustard, and if we search the clusters of blossom of this plant, or the Cuckoo Flower in June, the eggs may be found, for these are placed upright on the leaf-stalk. They are whitish when first laid, with a faint tinge of green, but soon turn to yellow, later to orange, and then dark violet.

If eggs of a dark violet colour are found, the caterpillar

Fig. 28. Leaf of Maple.

Fig. 29. Leaf of Hedge Mustard.

may soon be expected. This is dull bluish-green, with raised dots and warts. Whitish hairs proceed from the dots, and from the warts arise long blackish hairs. Along the sides of the body there is a line, or stripe of white, and the body underneath is greener than the back.

The caterpillar is very well protected, as you will readily agree when you commence to search for it. It so nearly resembles the seed pods of the plant upon which it feeds that it is often only by chance discovered. The next time you see a plant of Hedge Mustard, bearing what you consider more than a full complement of seed vessels, just examine it, and see if the caterpillar has deceived you.

The larva also feeds upon other plants, besides those on which it is born, such as Charlock, Hedge Garlic, Watercress, Horse Radish, and Rock Cress. The eggs, however, must be sought for upon the Cuckoo Flower or the Hedge Mustard.

It should be noted that the Hedge Mustard and the Hedge Garlic, although first cousins, are very different, and can be readily distinguished one from the other (see page 49). The Hedge Mustard has small pale yellow flowers which are borne on a long slender spike. It is a strong wiry plant and often becomes quite bushy.

When the flowers have gone the curious long and narrow seed vessels press closely to the stem, and somewhat resemble green caterpillars creeping up each side. The hairy leaves grow mostly towards the base and are somewhat like those of the Dandelion.

XV.

GROUND IVY—GLOW-WORM.

THERE is still another hedgerow plant that we must see before we leave, and this is the Ground Ivy. It must not be confused with the Common Ivy, for, although both are growing together, they are in no way connected.

The Ground Ivy is an early bloomer, and sometimes before March is out, the purple or blue flowers brighten the hedge-bank in a beautiful way. The flowers are borne in whorls or circles at the axils of the leaves, that is, at the place where the latter meet the stems. In shape, these blossoms somewhat resemble those of the Dead-Nettle, for the petals are

A Pair of Hedgehogs

Dormice Awake

Dormouse Asleep

united in the form of a tube. The leaves are kidney-shaped, rough, and have scalloped edges.

It is in its creeping habits more than anything else, that the present plant interests us, for as its square stem makes its way along the ground, it sends down a tuft of fibrous roots wherever it puts forth a pair of leaves. Thus, like the Strawberry, it is able to spread and take possession of the ground.

The juice of the plant is aromatic and bitter, and it is

Fig. 30. Ground Ivy, showing roots.

interesting to notice that in olden times it was used in brewing, as Hops are to-day.

It is the gloaming-hour now; the time when the Bats, the Owls, the Cockchafers, the Moths, and many other creatures commence their revels. It is almost dark, but how quiet and beautiful everything is! And, look, the hedge is still a lovely place, for the insect lamplighters have come out and set their lamps burning brightly.

Are we in Fairyland or England? What is the meaning of this brilliant lighting up of our hedgerow, the bottom of

which now seems set with sparkling gems? What means this?

It is the gloaming, and also the Glow-worm's hour. That is the secret of this electric effect of the hedge-bottom. Every moment the lights increase, until the place is simply aglow with living green fairy lamps.

Try and catch one of the creatures if you can. See, it is not a worm at all, but a beetle. This is without doubt a female, because her colour is of a dull black, her body is soft and flexible, and she has no wings. The male possesses less power of producing this curious glow, and he may at once be known by his wings and wing-covers. He flies at night, and is guided in his wanderings by the bright signal given off by his mate in the hedge-bottom.

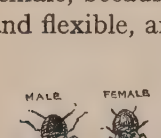


Fig. 31. Glow-worms.

The "lantern" is simply a luminous spot on the abdomen, and as the insect moves about, the light appears, disappears, and re-appears, producing a most charming effect.

Beyond this, the female has the power of increasing or diminishing or putting out the light altogether. When there is more electricity in the air than usual, the brightness of the light increases. If the insect be placed in warm water the light is much brighter; cold water puts the lantern out entirely.

The larva or grub of this remarkable insect has to celebrate more than one birthday before it reaches the adult state.

Snails form its chief diet, and here we have still another example of why we find it in our hedgerow. The larva is a wonderful little creature, for it has a sort of brush at the end of the body, and by means of this, it is not only able to

move along, but can also clean its body from the slime of the Snail.

The hours have sped all too quickly, while we have been wending our way along this pleasant hedgerow, but we trust that the time has not been spent in vain. And if "in Nature's infinite book of secrecy a little can you read," it should but entice you to return again and again to those marvellous pages, and glean for yourselves more and more of the ways and doings of Nature's wild children.

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CALENDAR AND NOTES

OF

ANIMALS AND PLANTS

COMPILED BY C. S. COOPER, F.R.H.S.

I. BIRDS

CHAFFINCH.—In England all the year; also many visitors from Norway and Sweden in Winter. *Male bird:* chestnut-brown; forehead black; head and neck ashy grey; breast red; some white tail feathers; length 6 inches. *Female:* ashy brown; some wing feathers yellow; breast pink; length 6½ inches. *Nest:* April–July; in bushes, branches, or small forks of trees; moss, hairs, feathers, roots, and lichens; *eggs* 4–6, ashy grey with reddish and bluish tinge, spotted with brown and black. *Food:* insects and larvæ in summer; seeds and beech mast in winter. *Call-note:* "pink, pink"; begins to sing in February; full song in April.

CUCKOO.—Spends Winter in Africa and India; arrives here in April; leaves about end of July. *Male bird:* general colour above leaden-grey; under surface white, barred with black; length 14 inches. *Female:* very similar to male; length 12½ inches. *Nest:* none; *eggs* placed in nests of other birds; usual colour reddish-grey or greyish-green, speckled and mottled with darker shades. *Food:* insects and their larvæ; believed to be the only bird which eats the "Woolly Bear" larva of the Tiger Moth. *Call-note,* "Cuckoo" uttered by male bird; female utters a "whittling" or "water-burbling" cry; begins to sing in April, "in May he sings all day, in June he alters his tune."

GARDEN WARBLER.—Spends Winter in Africa; arrives here about beginning of May; leaves again in September. *Male bird:* general colour greyish-brown above, tinged with olive; throat and breast brownish-white; length 6 inches. *Female:* similar to male, but rather paler. *Nest:* May–September; low down in a bush, or near ground amongst herbage; dry grasses and rootlets, wool and moss, lined with fine roots and hair; *eggs* 4 or 5, greenish-white, mottled, spotted, and streaked with light grey and olive brown. *Food:* insects, grubs, and soft fruits. *Song:* soft and rich, somewhat like that of the Blackbird; seldom sings in the open or from a perch.

GREATER WHITETHROAT.—Spends Winter in S. Africa; arrives here early in April; leaves at end of September. *Male bird:* general colour greyish-brown above, breast dull white, tinged with rose; length 5½ inches. *Female:* duller brown above, under surface whiter, rose tint less distinct. *Nest:* May–July; in bramble-bushes and coarse herbage close to ground; dry grasses, lined with hair; *eggs* 4–6, greenish-white, spotted and speckled with greenish-grey and brownish-grey. *Food:* insects and soft fruits, large numbers of Daddy Longlegs. *Song:* loud and lively, with a few harsh notes; warbles from sunrise to sunset, usually from top of hedge, even during rain and storm.

HEDGE SPARROW.—In England all the year. *Male bird:* general colour above brown, throat and breast slaty-grey, shading off into dull white; length 5½ inches. *Female:* similar to male. *Nest:* March–June; in hedges, brambles, shrubs, stacks, ivy, etc.; twigs, grass, moss, wool, and hair; *eggs* 4–6, blue, without spots. *Food:* worms and insects, with seeds or scraps in Winter. *Sings* all through the year.

LONG-TAILED TIT.—In England all the year round. *Male bird:* black, white, and brown, flushed with rosy-red, length 5½

inches. *Female:* similar to male, slightly smaller. *Nest:* March–June; in hedges and furze bushes; moss, wool, lichens, spiders' webs, and lined with feathers; *eggs* 6–10, white or pearly-grey, sprinkled with light red dots, with a few faint purple marks. *Food:* almost entirely of insects. *Song:* a low and delicate trill, with the zi-zi peculiar to the Tits, and a " churring " note of its own.

PARTRIDGE.—In England all the year. *Male bird:* general colour above brownish-buff, with wavy cross-bars and lines of black; breast grey, mottled with black, with large horse-shoe-shaped chestnut patch; length 12½ inches. *Female:* with buff cross on some of the wing feathers; in some parts the horse-shoe patch is indistinct or entirely absent. *Nest:* May and early June; a slight hollow in the ground, roughly lined with a few dry grasses; *eggs* 10–20, pale olive-brown. *Food:* grain, seeds of weeds, worms, caterpillars, beetles, young leaves. *Cry:* a powerful, metallic, far-reaching note.

ROBIN.—In England all the year round; also many visitors from the continent in Autumn. *Male bird:* general colour dark olive brown; cheeks, throat, and chest orange-red, bordered with bluish-grey; centre of breast and abdomen dull white; length 6 inches. *Female:* almost similar to male. *Nest:* early Spring to late Summer; in many situations, amongst ivy, a hole in a wall or tree, old cans and utensils, etc.; dead leaves and moss, lined with rootlets and hair; *eggs* 5–7, white, freckled with red. *Food:* worms, insects, and scraps. *Call-note:* clear and musical; cry of distress, a long-drawn shrill note; sings all the year except during the moulting in Autumn.

YELLOW BUNTING.—In England all the year. *Male bird:* brown above; under surface yellow, with tinge of green; breast and sides chestnut or bay; crown yellow; length 7 inches. *Female:* less brightly coloured; yellow on crown concealed; throat and breast striped; length 6¼ inches. *Nest:* April–August; low down in a hedgerow, bush, or bank; moss, rootlets, cobwebs, and lichens,

lined with horse-hair and down; *eggs* 3–4, generally 3, dingy white, streaked and veined with dark purplish-brown, with spots of same colour. *Food:* insects and caterpillars, with grain in Winter. *Song:* two or three chirps like "chit-chit," followed by a long "chirr-r-r,"—said to resemble "Bit o' bread and no chee-e-e-se."

II. INSECTS

BRIMSTONE MOTH.—April–September; most plentiful in May and June; can be taken on palings during day; flies in the evening, and comes to light. *Wings:* sulphur-yellow; front margin of fore wings spotted with red. *Eggs:* June–September. *Larva:* June–September; twig-like, brownish tinged with greenish or purplish, 14 legs; feeds on Hawthorn and Blackthorn.

DRINKER MOTH.—July and August; may be found at rest among coarse grasses in lanes and ditch-sides; comes to light. *Male:* dull reddish brown, antennæ very feathery, abdomen slightly tufted. *Female:* yellow, abdomen thick. *Eggs:* white with bluish grey markings, laid in clusters on grass stems. *Larva:* dull slaty grey inclining to blackish with tufts of black, white, brown, and yellow hairs; feeds on coarse grasses from August to October, hybernates through Winter, feeds again from April to June; likes its food to be sprinkled with water.

GLOW-WORM.—May–September. *Male:* has brownish wing-cases (elytra) covering a pair of wings; five-twelfths inch long. *Female:* grub-like, wingless; two-thirds inch long. *Larva:* hybernates through Winter, changes to pupa in April or May; feeds on snails.

GOLD-TAIL MOTH.—July and August; may be found at rest on the foliage of bushes, branches of trees, and palings, looking like a fluffy white feather; attracted by light. *Male:* white, usually a black mark on the fore wings, under sides black, tuft yellow, expands

one and one-third inches. *Female:* white, expands one and five-sixths inches; golden hairs of tail used for covering eggs. *Eggs* laid in batches in August. *Larva:* black with a double red line down the back, a white line beneath, and a red line on the sides, small humps on three segments; hybernates through Winter in a silken case, recommences feeding in Spring, in May separates from its companions, a common object on Hawthorn hedges; feeds on Hawthorn, Apple, Oak, and other trees.

GREEN-VEINED WHITE BUTTERFLY.—April – August. *Male:* one black spot on fore wings. *Female:* two spots and a black dash. Under side of both yellow with greenish veins. *Eggs:* May and August. *Larva:* June and September; green; feeds on Water-cress, Hedge Garlic, and others of Wallflower Family.

LACKEY MOTH.—July and August; is attracted by light. *Wings:* varying from pale yellow ochre, through pale brown to reddish or dark brown; generally two lines across the fore wings. *Eggs:* July and August, greyish brown, in a ring cluster around a twig, remaining exposed through the Winter. *Larva:* hatch in April, and live till June under a common silken tent-like web; full grown caterpillar is many-coloured, slaty blue above, with a bluish white line, bordered by a reddish-orange-lined black stripe, with various other stripes below; head slaty blue, with two black eye-like spots; feeds on Hawthorn, Blackthorn, fruit trees, and forest trees, doing very great damage to the foliage; chrysalis enclosed in a double cocoon, the inner being covered with a sulphur-like powder.

OIL BEETLE.—April and May. *Male:* wingless, elytra covering about two-thirds of body. *Female:* wingless, body often much swollen, elytra covering about half the body. *Eggs:* laid in the ground. *Larva:* parasitic in nests of Bees, feeding on food prepared for Bee larva.

ORANGE TIP BUTTERFLY.—April–June. *Male:* tip half of fore wings deep orange. *Female:* without orange mark. Under side

of hind wings in both white chequered with yellowish green. *Eggs:* May, on Cuckoo Flower and Hedge Mustard. *Larva:* July; green, white stripe on each side, spiny; feeds on Cuckoo Flower, Hedge Garlic, Hedge Mustard, and others of Wallflower Family.

PEACOCK BUTTERFLY.—March–May and July–September, hybernating through Winter. *Wings* dull deep red with an eye-like spot on each. *Eggs:* April and May. *Larva:* June and July; black with white dots, spiny; feeds on Stinging Nettle.

RED ADMIRAL BUTTERFLY.—August–October, hybernating through Winter and reappearing on sunny days in Spring. *Wings* black and red with white spots near tip of fore wings. *Eggs:* April and May. *Larva:* June and July; yellowish-grey with a pale yellow line, spiny; feeds on Stinging Nettle.

SMALL TORTOISESHELL BUTTERFLY.—March–September, hybernating through Winter. *Wings* reddish-orange with black spots, border marked with blue spots. *Eggs:* April, May, and July. *Larva:* May, June, and August; yellowish grey, striped with black and brownish-yellow; feeds on Stinging Nettle.

TIGER MOTH.—July. *Fore wings* brown, with white interlacing bands; *hind wings* and abdomen dark red, with blue-black spots. *Eggs:* July. *Larva:* September–May, hybernating through Winter; black, with long white hairs along back; reddish brown hairs along the sides and on the 2nd, 3rd, and 4th segments; feeds on Stinging Nettle, White Dead-Nettle, and many low plants.

III. MAMMALS

BROWN RAT.—Introduced from the Continent early in the 18th century. *General colour* greyish brown above, whitish beneath. *Length* of head and body about 9 inches; tail $7\frac{1}{2}$ inches. *Inhabits*

drains, sewers, buildings, granaries, banks of canals, and rivers. *Feeds* on almost anything.

DORMOUSE.—A native of Britain. *General colour* of upper parts light tawny, paler and yellowish beneath. *Length* of head and body, about 3 inches; tail 2½ inches. *Inhabits* hedgerows, woods, and plantations, and sometimes met with in fields. Sleeps through Winter in a nest, generally in the stump of a Hazel Tree, sometimes on the ground, or even in deserted bird's-nest. *Food:* Acorns, Hazel-nuts, seeds of Hornbeam and other trees, grain, and fruit.

HEDGEHOG.—A native of Britain. Back and sides protected by spines; face and under parts clothed with yellowish-white hair. *Length* of head and body, about 10 inches; tail 1½ inches. *Inhabits* hedge-banks and thickets, hiding during the day, and seeking food at night. Sleeps through the Winter. *Food:* Slugs, Snails, Worms, Beetles, Frogs, Snakes, eggs, and young birds.

LONG-TAILED FIELD MOUSE.—A native of Britain. *General colour* of upper parts bright reddish-grey; under parts whitish, with patch of light brown on breast. *Length* of head and body 4¼ inches; tail 4 inches. *Inhabits* hedges, thickets, corn-fields, and gardens during Summer; in Winter hides in barns, out-buildings, and corn-stacks. *Food:* corn, bulbs, nuts, acorns, small seeds, insects, and grubs; stores up large quantities of food for Winter, underground, in deserted birds'-nests, or in hedge-banks. *Natural enemies:* Kestrel, Owl, Stoat, Weasel, and Fox.

WEASEL.—A native of Britain. *General colour* of upper parts reddish-brown; under parts yellowish-white. *Male:* length of head and body 8¼ inches; tail 2½ inches. *Female:* length of head and body 7 inches; tail 2 inches. *Inhabits* hedgerows and woods, fields and pastures, pursuing its prey into barns, granaries, and corn-stacks. *Feeds* on Voles, Rats, and Moles, and sometimes small birds and eggs.

IV. TREES AND FLOWERING PLANTS

Name.	Time of Flowering.	Colour.	Height.
Hazel	Feb.—April	Male catkin, yellow; female catkin, tuft of red stigmas	Tree
Ground Ivy	Mar.—June	Blue	Creeping
Sweet Violet	„ —May	„ or White	„
Dog Violet	April—June	„	„
Greater Stitchwort	„ — „	White	1–2 ft.
Red Dead-Nettle	„ —Oct.	Reddish Purple	6–12 ins.
White Dead-Nettle	„ „	White	6–18 ins.
Lords and Ladies (Arum)	„ May	Purple	6–12 ins.
Germander Speedwell	May—June	Blue	1–2 ft.
Hedge Garlic	„ „	White	2–3 ft.
Sycamore	„ „	Green	Tree
Maple	„ „	„	„
Hawthorn	„ „	White	„
Black Bryony	„ —July	Yellowish Green	Climber
Herb Robert	„ —Sept.	Pink	1–2 ft.
Lesser Stitchwort	„ —Aug.	White	1–2 ft.
White Bryony	„ —Sept.	Whitish Green	Climber
Dog Rose	June—July	Pink	3–6 ft.
Hedge Mustard	„ „	Yellow	1–2 ft.
Cleavers	„ —Aug.	White	1–5 ft.
Cow Parsnip	„ — „	Pinkish White	4–5 ft.
Greater Bindweed	„ — „	White	Climber
Honeysuckle	„ —Sept.	Creamy Yellow	„
Foxglove	„ — „	Purple	2–5 ft.
Stinging Nettle	„ — „	Green	1–4 ft.
Blackberry	July—Aug.	White or Pink	3–10 ft.
Traveller's Joy	„ —Sept.	Greenish White	Climber
Dock	„ — „	Reddish Green	2–5 ft.
Ivy	Oct.—Nov.	Green	Climber

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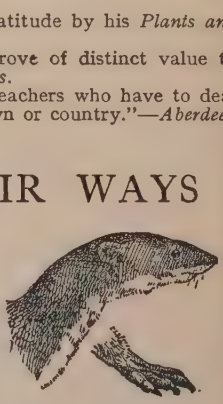

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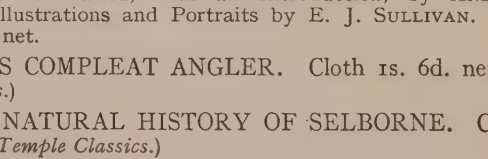

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